Microbac

Laboratory Report Number: L12010613

Mark Lyon
Environmental Waste Solutions
2440 Louisiana Blvd
Albuquerque, NM 87110

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Stephanie Mossburg – Team Chemist/Data Specialist
(740) 373-4071
Stephanie.Mossburg@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on February 08 2012

David L. Vandenberg

David Vandenberg – Managing Director

State of Origin: NM
Accrediting Authority: N/A ID:N/A
QAPP: DOD Ver 4.1

Microbac

Lab Report #: L12010613
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy	Resolution

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #
0016939	H	2.0		1002239543460004575000874824307430

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct perservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	NA

Microbac

Lab Report #: L12010613
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
MPL28-0112-1	L12010613-01	01/23/2012 13:00	01/24/2012 11:08

Microbac Laboratories ● Ohio Valley Division
158 Starlite Drive, Marietta, OH 45750 ● T: (740)373-4071 F: (740)373-4835
www.microbac.com

Login Number: L12010613
Department: Conventionals
Analyst: Dorothy Payne

METHOD

Analysis SW846 9040C,9045D/EPA 150.1/SM4500-H B (pH)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

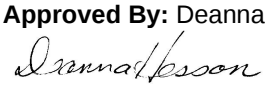
Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 41694
Approved By: Deanna Hesson



Login Number: L12010613
Department: Metals
Analyst: Sheri Pfalzgraf

METHOD

Preparation: SW-846 3005

Analysis: SW-846 6010

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

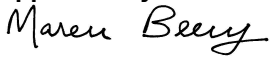
Serial Dilution/Post Digestion Spikes: WG388125 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41492
Approved By: Maren Beery



Login Number: L12010613
Department: Metals
Analyst: Erin Long

METHOD

Preparation: SW-846 3015

Analysis: SW-846 6020

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

Low Level Check: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

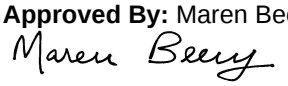
Serial Dilution/Post Digestion Spikes: WG388019 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41443
Approved By: Maren Beery



Login Number: L12010613
Department: Metals - AA
Analyst: Sheri Pfalzgraf

METHOD

Preparation: SW-846 7470

Analysis: SW-846 7470

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

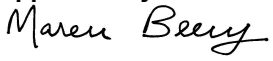
Serial Dilution/Post Digestion Spikes: WG388140 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41412
Approved By: Maren Beery



Login Number: L12010613
Department: General Chromatography
Analyst: Jeremy Kinney

METHOD

Analysis SW-846 9056/300.0

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: Fraction -01 was analyzed at a dilution due to Cl concentrations greater than the ICAL. Fraction -01 was analyzed for fluoride via method SM4500-F C (Potentiometric Determination) due to greatly reduced fluoride recoveries via IC analysis. Fluoride recoveries fail due to high concentrations of metal cations found in sample matrices. Efforts are made to prevent the precipitation of these cations in the gaurd and analytical columns and suppressor but are not completely effective. Even with the preventative efforts to eliminate these interferences the instrument was unable to analyze F at greater than 90% recovery.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected

via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Laboratory Director or the QA/QC Supervisor will be required.

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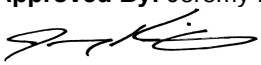
Narrative ID: 41523
Approved By: Jeremy Kinney



Login Number: L12010613
Department: Conventionals
Analyst: Deanna Hesson

METHOD

Analysis EPA 310.2 (Alkalinity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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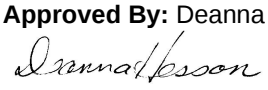
Narrative ID: 41692
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Jeremy Kinney

METHOD

Analysis SW846 9014/9010C/SM4500-CN-C,E-20th (Cyanide)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: Cyanide-Ammenable is the difference between the total cyanide and the treated cyanide. The LCS is analyzed to show that all of the cyanide is ammenable (the treated portion is ND). The LCS forms cannot calculate cyanide ammenable. The LCS is acceptable.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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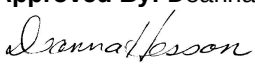
Narrative ID: 41406
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Dorothy Payne

METHOD

Analysis EPA 120.1/SM2510 B (Conductivity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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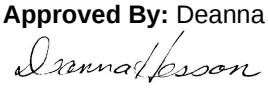
Narrative ID: 41693
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Deanna Hesson

METHOD

Analysis SM4500-F-C (Fluoride)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: The samples were analyzed by SM4500-F C due to instrument failure for Method 300.

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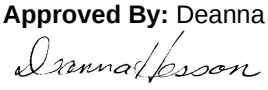
Narrative ID: 41700
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Deanna Hesson

METHOD

Analysis EPA 350.1/SM4500-NH3 B(NH3)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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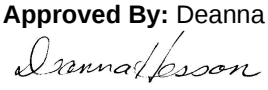
Narrative ID: 41695
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Deanna Hesson

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: Nitrate is reported as the difference of nitrate-nitrite (28 day hold) and nitrite (48 hour hold). Both analysis were analyzed within the appropriate hold time. The nitrate hold time is within compliance.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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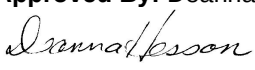
Narrative ID: 41696
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Holly Reed

METHOD

Analysis EPA 365.2/SM4500-P E (Orthophosphate)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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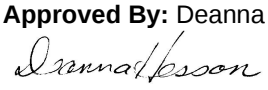
Narrative ID: 41697
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Holly Reed

METHOD

Analysis EPA 160.1/SM2540 C(Total Dissolved Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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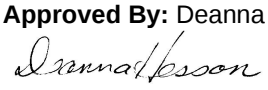
Narrative ID: 41701
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Deanna Hesson

METHOD

Analysis Water: EPA 415.1/SM5310C/SW846 9060 (Total Organic Carbon)
Soil: Lloyd-Khan Methodology

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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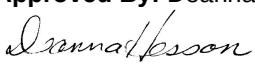
Narrative ID: 41698
Approved By: Deanna Hesson



Login Number: L12010613
Department: Conventionals
Analyst: Holly Reed

METHOD

Analysis EPA 160.2/SM2540 D (Total Suspended Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

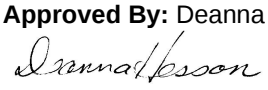
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 41699
Approved By: Deanna Hesson



Certificate of Analysis

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	PE-ICP2
Client ID:	MPL28-0112-1	**Prep Method:**	3005A	**Prep Date:**	01/25/2012 08:07
Matrix:	Water	**Analytical Method:**	6010B	**Cal Date:**	01/30/2012 12:30
Workgroup #:	WG387954	**Analyst:**	SLP	**Run Date:**	01/30/2012 14:31
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	P2.013012.143152
Sample Tag:	02	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Beryllium, Total	7440-41-7		U	0.00200	0.00100
Calcium, Total	7440-70-2	92.5		0.200	0.100
Magnesium, Total	7439-95-4	16.5		0.500	0.250
Manganese, Total	7439-96-5		U	0.0100	0.00500
Potassium, Total	7440-09-7	2.90		1.00	0.500
Sodium, Total	7440-23-5	34.3		0.500	0.250
Tin, Total	7440-31-5		U	0.500	0.250
Vanadium, Total	7440-62-2		U	0.0100	0.00500
Zinc, Total	7440-66-6		U	0.0200	0.0100

U	Analyte was not detected. The concentration is below the reported LOD.

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	ELAN-ICP
Client ID:	MPL28-0112-1	**Prep Method:**	3015	**Prep Date:**	01/26/2012 06:32
Matrix:	Water	**Analytical Method:**	6020	**Cal Date:**	01/28/2012 10:56
Workgroup #:	WG388019	**Analyst:**	EDL	**Run Date:**	01/28/2012 12:42
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	EL.012812.124233
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2	0.0127		0.00100	0.000500
Barium, Total	7440-39-3	0.0701		0.00300	0.00150
Cadmium, Total	7440-43-9		U	0.000600	0.000300
Chromium, Total	7440-47-3	0.00264		0.00200	0.00100
Cobalt, Total	7440-48-4		U	0.00100	0.000500
Copper, Total	7440-50-8		U	0.00200	0.00100
Lead, Total	7439-92-1		U	0.00100	0.000500
Nickel, Total	7440-02-0	0.00264	J	0.00400	0.00200
Selenium, Total	7782-49-2	0.0494		0.00100	0.000500
Silver, Total	7440-22-4		U	0.00100	0.000500
Thallium, Total	7440-28-0		U	0.000200	0.000100

J	Estimated value ; the analyte concentration was less than the LOQ.
U	Analyte was not detected. The concentration is below the reported LOD.

Certificate of Analysis

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	HYDRA
Client ID:	MPL28-0112-1	**Prep Method:**	7470A	**Prep Date:**	01/27/2012 08:27
Matrix:	Water	**Analytical Method:**	7470A	**Cal Date:**	01/27/2012 14:02
Workgroup #:	WG388140	**Analyst:**	SLP	**Run Date:**	01/27/2012 14:24
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	HY.012712.142414
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Mercury	7439-97-6		U	0.000200	0.000100

U	Analyte was not detected. The concentration is below the reported LOD.

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	IC1
Client ID:	MPL28-0112-1	**Prep Method:**	300.0	**Prep Date:**	01/26/2012 15:17
Matrix:	Water	**Analytical Method:**	300.0	**Cal Date:**	09/14/2011 11:03
Workgroup #:	WG387948	**Analyst:**	JBK	**Run Date:**	01/26/2012 17:19
Collect Date:	01/23/2012 13:00	**Dilution:**	10	**File ID:**	I10126121719.10
Sample Tag:	DL01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Chloride	16887-00-6	76.1		2.00	1.00
Sulfate	14808-79-8	122		10.0	5.00

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	ORION-4STAR
Client ID:	MPL28-0112-1	**Prep Method:**	9040C	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	9040C	**Cal Date:**	
Workgroup #:	WG387832	**Analyst:**	DLP	**Run Date:**	01/24/2012 17:00
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	OS12012510451101
Sample Tag:		**Units:**	UNITS		

Analyte	CAS #	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	7.38		0.000	0.000

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MPL28-0112-1	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	01/24/2012 13:54
Workgroup #:	WG387830	**Analyst:**	DIH	**Run Date:**	01/24/2012 14:19
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	SC120124002.050
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)		102		20.0	10.0

Certificate of Analysis

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MPL28-0112-1	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	01/24/2012 13:54
Workgroup #:	WG387830	**Analyst:**	DIH	**Run Date:**	01/24/2012 14:19
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	SC120124002.050
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Bicarbonate (as CaCO3)		102		20.0	10.0

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MPL28-0112-1	**Prep Method:**	310.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	310.2	**Cal Date:**	01/24/2012 13:54
Workgroup #:	WG387830	**Analyst:**	DIH	**Run Date:**	01/24/2012 14:19
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	SC120124002.050
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Carbonate (as CaCO3)			U	20.0	10.0

U	Analyte was not detected. The concentration is below the reported LOD.

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	UV-120-1V
Client ID:	MPL28-0112-1	**Prep Method:**	SM4500-CN-I	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-CN-I	**Cal Date:**	01/30/2012 15:00
Workgroup #:	WG388302	**Analyst:**	DLP	**Run Date:**	01/30/2012 18:00
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	1V.1201301800-08
Sample Tag:	D01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable	57-12-5	0.0615		0.0100	0.00500

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	UV-120-1V
Client ID:	MPL28-0112-1	**Prep Method:**	SM4500-CN-C,G	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-CN-C,G	**Cal Date:**	01/27/2012 11:10
Workgroup #:	WG388028	**Analyst:**	JBK	**Run Date:**	01/27/2012 11:50
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	1V.1201271150-10
Sample Tag:	CN-A	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.0825		0.0100	0.00500

Certificate of Analysis

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	UV-120-1V
Client ID:	MPL28-0112-1	**Prep Method:**	9014-9010C	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	9014-9010C	**Cal Date:**	01/27/2012 11:10
Workgroup #:	WG388027	**Analyst:**	JBK	**Run Date:**	01/27/2012 11:30
Collect Date:	01/23/2012 13:00	**Dilution:**	2	**File ID:**	1V.1201271130-11
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.343		0.0200	0.0100

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	YSI-32
Client ID:	MPL28-0112-1	**Prep Method:**	120.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	120.1	**Cal Date:**	
Workgroup #:	WG388141	**Analyst:**	DLP	**Run Date:**	01/27/2012 11:20
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	32.1201271120-06
Sample Tag:		**Units:**	umhos/cm		

Analyte	CAS #	Result	Qual	LOQ	LOD
Conductivity		745		1.00	0.500

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	ORION-710A1
Client ID:	MPL28-0112-1	**Prep Method:**	SM4500-F-C	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-F-C	**Cal Date:**	
Workgroup #:	WG388474	**Analyst:**	DIH	**Run Date:**	02/01/2012 10:45
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	O112020113425101
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Fluoride	16984-48-8	0.183		0.100	0.0500

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MPL28-0112-1	**Prep Method:**	350.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	350.1	**Cal Date:**	01/27/2012 11:48
Workgroup #:	WG388059	**Analyst:**	DIH	**Run Date:**	01/27/2012 12:07
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	SC120127002.028
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrogen, Ammonia	7664-41-7	0.137		0.100	0.0500

Certificate of Analysis

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	MPL28-0112-1	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	01/30/2012 09:15
Workgroup #:	WG388287	**Analyst:**	DIH	**Run Date:**	01/30/2012 14:40
Collect Date:	01/23/2012 13:00	**Dilution:**	5	**File ID:**	SC12013112370301
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		8.16		0.250	0.125

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	UV-120-1V
Client ID:	MPL28-0112-1	**Prep Method:**	SM4500-P-E-20th	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	SM4500-P-E-20th	**Cal Date:**	12/21/2011 14:35
Workgroup #:	WG387929	**Analyst:**	HJR	**Run Date:**	01/25/2012 12:45
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	1V.1201251245-05
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Orthophosphate	14265-44-2	0.0256	J	0.0500	0.0250

J	Estimated value ; the analyte concentration was less than the LOQ.

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	OVEN
Client ID:	MPL28-0112-1	**Prep Method:**	160.1/SM2540C	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	160.1	**Cal Date:**	
Workgroup #:	WG387937	**Analyst:**	HJR	**Run Date:**	01/25/2012 16:10
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	EN.1201251610-23
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Dissolved Solids		512		20.0	10.0

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	TOC-VWP
Client ID:	MPL28-0112-1	**Prep Method:**	415.1	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	415.1	**Cal Date:**	12/06/2011 09:40
Workgroup #:	WG387852	**Analyst:**	DIH	**Run Date:**	01/25/2012 15:58
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	TC01252012.030
Sample Tag:	01	**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Organic Carbon		1.67		1.00	0.500

Certificate of Analysis

Sample #:	L12010613-01	**PrePrep Method:**	N/A	**Instrument:**	OVEN
Client ID:	MPL28-0112-1	**Prep Method:**	160.2/SM2540D	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	160.2	**Cal Date:**	
Workgroup #:	WG387936	**Analyst:**	HJR	**Run Date:**	01/26/2012 14:53
Collect Date:	01/23/2012 13:00	**Dilution:**	1	**File ID:**	EN.1201261453-15
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Suspended Solids		5.00		5.00	2.50

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
February 8, 2012

ADC – ANTHONY D. CANTER	AJF – AMANDA J. FICKIESEN	ALB – ANNIE L. BROWN
ALV – AMY L. VALENTINE	AML – TONY M. LONG	AZH – AFTER HOURS
BLG – BRENDA L. GREENWALT	BRG – BRENDA R. GREGORY	CAA – CASSIE A. AUGENSTEIN
CAF – CHERYL A. FLOWERS	CEB – CHAD E. BARNES	CLC – CHRYS L. CRAWFORD
CLS – CARA L. STRICKLER	CLW – CHARISSA L. WINTERS	CPD – CHAD P. DAVIS
CS – CODY M. STRAHLER	CSH – CHRIS S. HILL	DDE – DEBRA D. ELLIOTT
DEV – DAVID E. VANDENBERG	DGB – DOUGLAS G. BUTCHER	DHG – DEBORAH H. GRIFFITHS
DIH – DEANNA I. HESSON	DLB – DAVID L. BUMGARNER	DLP – DOROTHY L. PAYNE
DLR – DIANNA L. RAUCH	DSM – DAVID S. MOSSOR	ECL – ERIC C. LAWSON
EDL – ERIN D. LONG	ERP – ERIN R. PORTER	FJB – FRANCES J. BOLDEN
HAV – HEMA VILASAGAR	HJR – HOLLY J. REED	JAL – JOHN A. LENT
JBK – JEREMY B. KINNEY	JDH – JUSTIN D. HESSON	JKS – JANE K. SCHAAD
JLL – JOHN L. LENT	JWR – JOHN W. RICHARDS	JWS – JACK W. SHEAVES
JYH – JI Y. HU	KEB – KATIE E. BARNES	KHR – KIM H. RHODES
KRA – KATHY R. ALBERTSON	LKN – LINDA K. NEDEFF	LSB – LESLIE S. BUCINA
MDA – MIKE D. ALBERTSON	MDC – MIKE D. COCHRAN	MES – MARY E. SCHILLING
MMB – MAREN M. BEERY	MRT – MICHELLE R. TAYLOR	MSW – MATT S. WILSON
PDM – PIERCE D. MORRIS	PWD – PAUL W. DENT	RAH – ROY A. HALSTEAD
REK – BOB E. KYER	RLB – BOB BUCHANAN	RLK – ROBIN L. KLINGER
RWC – RODNEY W. CAMPBELL	SJP – SUZANNE J. PAUGH	SLM – STEPHANIE L. MOSSBURG
SLP – SHERI L. PFALZGRAF	TIP – TAE I. PARRISH	TMB – TIFFANY M. BAILEY
TMM – TAMMY M. MORRIS	VC – VICKI COLLIER	WJB – WILL J. BEASLEY
WTD – WADE T. DELONG		

Microbac Laboratories Inc.
List of Valid Qualifiers
February 08, 2012

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentativlely identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL).
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Analyte was not detected. The concentration is below the reported LOD.
UJ	Undetected; the analyte was analyzed for, but not detected.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

*****Special Notes for Organic Analytes**

Qualkey: DOD

1. Acrolein and acrylonitrile by method 624 are semi-quantitative screens only.
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene.
3. N-nitrosodiphenylamine cannot be separated from diphenylamine.
4. 3-Methylphenol and 4-Methylphenol are unresolvable compounds.
5. m-Xylene and p-Xylene are unresolvable compounds.
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound and are matrix dependent.

158 Starlite Drive
Marietta, OH 45750

Phone: 740-373-4071
Fax: 740-373-4835

COC No. A 28525

Microbac

CHAIN-OF-CUSTODY RECORD

Company Name: Zia Shaw

Project Contact: Mark Lyon

Contact Phone #: 505-262-8920

Turn Around Requirements: Normal

Location: WSMR

Project ID: STP

Sampler (print): Allison Seamess

Signature:

Sample I.D. No.	Comp	Grab	Date	Time	Matrix*	NUMBER OF CONTAINERS	Hold	Anions	Cond	pH	PO4	Alkalinity	Total, Free Amenable CN	Metals	NH3	TOC	NO3 NO2	TSS	TDS	TOTAL # (LAB USE)
MPL28-0112-1		X	1-23-12	1300	W	7		X	X			X	X	X	X			X		

Program: ☐ CWA ☐ RCRA ☐ DOD ☐ AFCEE ☐ Other

ADDITIONAL REQUIREMENTS

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
	1-23-12	1700	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)

Microbac OVD
Received: 01/24/2012 11:08
By: ROBIN KLINGER

221000021841

Remarks:

*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

Page _____ of _____

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L12010613
Account: 3005
Project: 3005.011
Samples: 1
Due Date: 03-FEB-2012

Samplenum	Container ID	Products
L12010613-01	931109	300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-JAN-2012 12:08	JKT		
2	ANALYZ	W1	WET	25-JAN-2012 13:17	JBK	RLK	
3	STORE	SEM	A1	03-FEB-2012 11:29	RLK	JBK	

Samplenum	Container ID	Products
L12010613-01	931110	ALK ALK-B ALK-C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-JAN-2012 12:08	JKT		
2	ANALYZ	W1	WET	24-JAN-2012 14:10	DIH	JKS	
3	STORE	WET	A1	25-JAN-2012 08:40	JKS	DIH	
4	ANALYZ	A1	WET	31-JAN-2012 09:53	JDH	RLK	
5	STORE	WET	A1	02-FEB-2012 07:37	AZH	DIH	

Samplenum	Container ID	Products
L12010613-01	931111	COND COR-PH PO4 F

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	24-JAN-2012 12:08	JKT		
2	STORE	WET	A1	30-JAN-2012 08:11	JKS	DLP	

Samplenum	Container ID	Products
L12010613-01	931112	TDS TSS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-JAN-2012 12:08	JKT		
2	ANALYZ	W1	WET	25-JAN-2012 09:21	HJR	RLK	
3	STORE	WET	A1	31-JAN-2012 08:52	RLK	HJR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L12010613
Account: 3005
Project: 3005.011
Samples: 1
Due Date: 03-FEB-2012

Samplenum	Container ID	Products
L12010613-01	931113	TOC NH3 NO3NO2

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-JAN-2012 12:08	JKT		<2
2	ANALYZ	W1	WET	25-JAN-2012 08:42	DIH	JKS	
3	STORE	WET	A1	02-FEB-2012 07:37	AZH	DIH	

Samplenum	Container ID	Products
L12010613-01	931114	AG-MS SE-MS SN TL-MS V ZN AS-MS BA-MS BE-AX CA

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-JAN-2012 12:08	JKT		
2	PREP	W1	DIG	24-JAN-2012 13:09	REK	RLK	
3	ANALYZ*	DIG	METALS	25-JAN-2012 15:08	KHR	REK	
4	STORE	DIG	A1	27-JAN-2012 12:31	RLK	ERP	

***Sample extract/digestate/leachate**

Samplenum	Container ID	Products
L12010613-01	931115	CN CN-A CN-WD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	24-JAN-2012 12:08	JKT		
2	ANALYZ	W1	WET	26-JAN-2012 09:25	JBK	RLK	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login